X. *An Obſervation of a Solar Eclipſe, October 27, 1780, at* Providence. *By* JOSEPH BROWN, *Eſquire.*

MY apparatus for the obſervation of the ſolar eclipſe was a three-feet reflecting teleſcope, with ſpirit levels; a ſmall graduated ſemi-circle of about $4\frac{1}{2}$ inches radius, and rack motions for taking altitudes; and a glaſs micrometer, fitted with rack motions, I believe of *Dolland's* conſtruction, having a nonius graduated to $\frac{1}{500}$ part of an inch: A reflecting teleſcope of near two feet; and a proſpect-glaſs of three feet four inches length, which I mounted on a convenient ſtand.

On the 20th, I moved my clock into a convenient part of my houſe; and from that time to the day of the eclipſe, I was conſtantly employed in taking correſponding altitudes of the ſun with my teleſcope, and conſtructing a meridian-line.

Our obſervations of the eclipſe were as follow:

The beginning was not accurately noted.	
Firſt ſeen in correct time,	10h 58′ 8″
Juſt touches a black ſpot in or near the middle of a macula at the right hand,	11 21 32
Juſt touches the firſt of four ſpots all nearly in a range in a macula at the left hand,	11 30 52
Ditto the ſpot neareſt the centre of the ſun's diſc,	11 35 20
The end of the eclipſe as ſeen by Mr. *Weſt* in the ſmall teleſcope,	1 39 1
Ditto by my brother in the ſpy-glaſs,	1 39 8
Ditto laſt ſeen by myſelf in the largeſt reflector,	1 39 16

I took the diameter of the ſun while the eclipſe was on, and made it three inches and $\frac{434}{500}$; which, by my table, conſtructed in the year 1769, previous to the tranſit of Venus, makes the ſun's apparent diameter 32′ 18″: And the ſmalleſt I ſaw the bright part of the ſun was $\frac{140}{500}$ of an inch: So ſmall I am certain it was, and it might probably be a very little leſs, tho' I believe this to be pretty exact; and this, I think, makes the ſun to be 11 digits and $\frac{3}{10}$ eclipſed, or very nearly ſo.